

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY


(Chapter II of the Patent Cooperation Treaty)

REC'D 14 APR 2005

(PCT Article 36 and Rule 70)

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Applicant's or agent's file reference 7810.120-304		FOR FURTHER ACTION		See Form PCT/PEA/416
International application No. PCT/US2004/000012		International filing date (day/month/year) 13.01.2004	Priority date (day/month/year) 13.01.2003	
International Patent Classification (IPC) or national classification and IPC C09C1/02, D21H19/38				
Applicant IMERYS PIGMENTS, INC.				
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau) a total of sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>				
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>				
Date of submission of the demand 30.07.2004		Date of completion of this report 15.04.2005		
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized Officer Telephone No. +31 70 340- 1016 Siebel, E.		



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Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

Description, Pages

1-33 as originally filed

Claims, Numbers

1-74 as originally filed

Drawings, Sheets

1-4 as originally filed

Drawings, Figures

1-8 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1-74
Inventive step (IS)	Yes: Claims	
	No: Claims	1-74
Industrial applicability (IA)	Yes: Claims	1-74
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Re Item V.

1 The following documents are referred to in this communication:

D1 : US 5 653 795 A (BROWN ALAN J) 5 August 1997 (1997-08-05)

D2 : US 5 676 747 A (BROWN ALAN J) 14 October 1997 (1997-10-14)

2 INDEPENDENT CLAIM 1

2.1 Document D1 discloses (the references in parenthesis applying to this document) a method for producing a paper coating composition comprising the steps of providing an anionically dispersed aqueous slurry of calcium carbonate (prismatic, rhombohedral, ground or precipitated), than adding a cationic low-molecular weight aggregating agent (see D1, column 1, line 11 to line 29; column 2, line 7 to column 5, line 11). In case of an anionic dispersed suspension of calcium carbonate, the anionic dispersant generally is selected from homopolymers or copolymers made from the group consisting of carboxylic acid containing vinyl monomers, sulphonic acid containing vinyl monomers, and mixtures thereof. More specifically, the anionic dispersing agent may be selected from the group consisting of polyacrylic acid homopolymers, polyacrylic acid copolymers, methacrylic acid homopolymers and copolymers, and mixtures thereof, with polyacrylic acid being a currently preferred anionic dispersing agent (see D1, column 3, line 30 - line 40). The cationic polymer (molecular weight 10.000-5000.000) used as aggregating agent is selected from the group consisting of poly-(alkyl diallyl) quaternary ammonium salts; quaternary ammonium cationic polymers obtained by copolymerizing aliphatic secondary amines with epichlorohydrin; poly (quaternary ammonium) polyether salts that contain quaternary nitrogen in a polymeric backbone chain extended by ether groups; polyamines; copolymers of acrylamide with cationic vinyl monomers; dimethylamine epichlorohydrin copolymers; dimethyldiallylammonium chloride homopolymer; dimethyldiallylammonium chloride copolymer; divalent metal ion salts; trivalent metal ion salts; polyethyleneimine polyelectrolytes; polyacrylic acid homopolymer; polyacrylic acid water-soluble salts; carboxyl containing polymers derived from methacrylic acid, itaconic acid and crotonic acid; and mixtures thereof (see D1, column 3, line 59 - line 63; column 4, line 12 - line 27). At least 30 percent by weight of mineral particles have an equivalent spherical diameter of less than about 2 microns, and generally about 60 percent by weight of the mineral particles have an equivalent spherical diameter of less than about 2

microns. As used herein, the term equivalent spherical diameter refers to the particle size reading obtained from measuring particle mineral size with a Micromeritics SEDIGRAPH.RTM. Model 5100 (see D1, column 3, line 6 - 20).

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1, 16, 33, 44, 50 and 57 is not new in the sense of Article 33(2) PCT.

- 2.2 Document D2 discloses (the references in parenthesis applying to this document) a method for making a calcium carbonate pigment for coating paper and paper boards. An aqueous slurry of anionically dispersed calcium carbonate particles is formed, a low-molecular weight (10.000-500.000) aggregating agent is then added to the slurry. In general, the method comprises first providing an aqueous slurry comprising from about 1 percent to about 30 percent solid mineral particles by weight. Best results are achieved when using mineral suspensions comprising ground natural calcium carbonate or synthetically precipitated calcium carbonate or mixtures thereof which have low abrasion characteristics and are relatively inexpensive. Preferably, at least 30 percent by weight of the mineral particles have an equivalent spherical diameter of less than about 2 microns. For best results, at least about 60 percent by weight of the mineral particles will have an equivalent spherical diameter of less than about 2 microns. As used herein, the terms "particle size" and "equivalent spherical diameter" refer to the particle size reading obtained from measuring mineral particle size with a Micromeritics SEDIGRAPH.RTM. Model 5100 particle size analyser. An anionically dispersed mineral slurry can be purchased as a dispersed slurry, or alternatively, an anionic dispersed mineral slurry can be found by combining water, calcium carbonate particles, and a dispersing agent. The anionic dispersing agent generally is selected from the group consisting of homopolymers or copolymers of carboxylic acid containing vinyl monomers, homopolymers or copolymers of sulphonic acid containing vinyl monomers, polyacrylic acid homopolymers, polyacrylic acid copolymers, methacrylic acid, and mixtures thereof, with polyacrylic acid being a currently preferred anionic dispersing agent. The low-molecular-weight cationic low-molecular weight (10.000 to 500.000) polymeric aggregating agent, which is added to the anionically charged slurry, generally is selected from the group consisting of poly (alkyl diallyl) quaternary ammonium salts; quaternary ammonium cationic polymers obtained by copolymerizing aliphatic secondary amines with epichlorohydrin; poly (quaternary ammonium) polyether salts that

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contain quaternary nitrogen in a polymeric backbone chain extended by ether groups; polyamines; copolymers of acrylamide with cationic vinyl monomers; dimethylamine epichlorohydrin copolymers; dimethyldiallylammonium chloride homopolymer; dimethyldiallylammonium chloride copolymer; divalent metal ion salts; trivalent metal ion salts; polyethyleneimine polyelectrolytes. The currently preferred low-molecular-weight selective aggregating agent is dimethyldiallylammonium chloride homopolymer (see D2, column 1, line 10 to 19, line 50 to 60; column 2, line 8 to column 4, line 11; column 4, line 48 to column 9, line 52; claims 1-3, 19, 24-26, 29-31).

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1, 16, 33, 44, 50 and 57 is not new in the sense of Article 33(2) PCT.

3. Dependent claims 2-15, 17-32, 33-43, 45-49, 51-56 and 58-74 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step.